What Is Claimed Is:

1. A fuel injector for use with an internal combustion engine, the fuel injector comprising:

a housing having a flow passage extending along a longitudinal axis between a first end and a second end;

an electromagnetic actuator including a stator having an end face;

an armature assembly proximate the electromagnetic actuator, the armature assembly having a surface in confronting arrangement with the end face;

spring means to establish a gap between the end face and the surface;

a flow metering device disposed within the flow passage proximate the second end, the flow metering device engaging the armature assembly; and

a sleeve disposed along the longitudinal axis within the flow passage at a preset position, the sleeve bearing against the flow metering device to define the gap.

2. The fuel injector according to claim 1, wherein the flow metering device engages the armature assembly and the sleeve to define a spring preload on the armature assembly.

3. The fuel injector according to claim 1, wherein the housing includes a tube assembly having a generally uniform diameter extending axially over a substantial length of the tube assembly.

4. The fuel injector according to claim 1, wherein the flow metering device further comprises at least one of a seat, an armature guide, and an orifice disk.

5. The fuel injector according to claim 1, wherein the armature assembly includes an armature, an armature tube and a closure member.

6. The fuel injector according to claim 3, further comprising welds that secure the seat and the sleeve to the tube assembly.

7. The fuel injector according to claim 3, wherein the gap is adjusted by moving at least one of the sleeve, an armature guide and a seat along the longitudinal axis.

8. The fuel injector according to claim 2, wherein the sleeve is an annulus having an outside diameter substantially equal to an inside diameter of the flow passage and a circumferential thickness between 5 to 25 percent of the inside diameter of the housing, the annulus being fixedly located in the flow passage by a working fit between the two diameters.

10. The fuel injector according to claim 1, wherein the sleeve comprises a substantially non-magnetic annulus having an inside diameter between 67% to 85% of the outside diameter of the flow passage.

11. The fuel injector according to claim 10, wherein the sleeve is formed by one of a stamping, casting, deep-drawing or a machining process.

12. The fuel injector according to claim 4, further comprising a retainer that secures the orifice disk within the housing and wherein the armature assembly includes an armature, armature tube and a closure member, the closure member being coupled to the armature guide, the armature guide being contiguous to the sleeve.

13. The fuel injector according to claim 1, wherein the sleeve is annulus having an axial length at least than one-half the outside diameter of the sleeve.

14. A method of setting a working gap of an armature assembly in a fuel injector, the fuel injector having a housing including a first end and a second end extending between a longitudinal axis, a housing having a flow passage extending between the first and second ends, an electromagnetic actuator including a stator and an armature assembly, a spring disposed between the stator and the armature assembly and operable to push the armature assembly towards the second end to form a gap therein, the method comprising:

inserting a sleeve and a flow metering assembly within the flow passage, the flow metering assembly limiting the movement of the armature assembly towards the second end; and

limiting the inserting of the flow metering assembly along the longitudinal axis toward a first end by a position of the sleeve, the position defining the magnitude of the gap between the stator and the armature assembly.

15. The method according to claim 14, wherein the housing further comprises a tube.

16. The method according to claim 14, wherein the flow metering assembly includes at least one of a seat, an armature guide and an orifice disk.

17. The method according to claim 14, wherein the sleeve has an outside diameter that grips the inside diameter of the flow passage.

18. The method according to claim 14, wherein the limiting further comprises a sleeve in contiguous engagement with the flow metering assembly.

19. The method according to claim 14, further comprising:

adjusting a volume of fuel dispensed by the fuel injector by moving at least one of the sleeve and seat along the longitudinal axis.